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(54) **COMMUNICATIONS VEHICLE**

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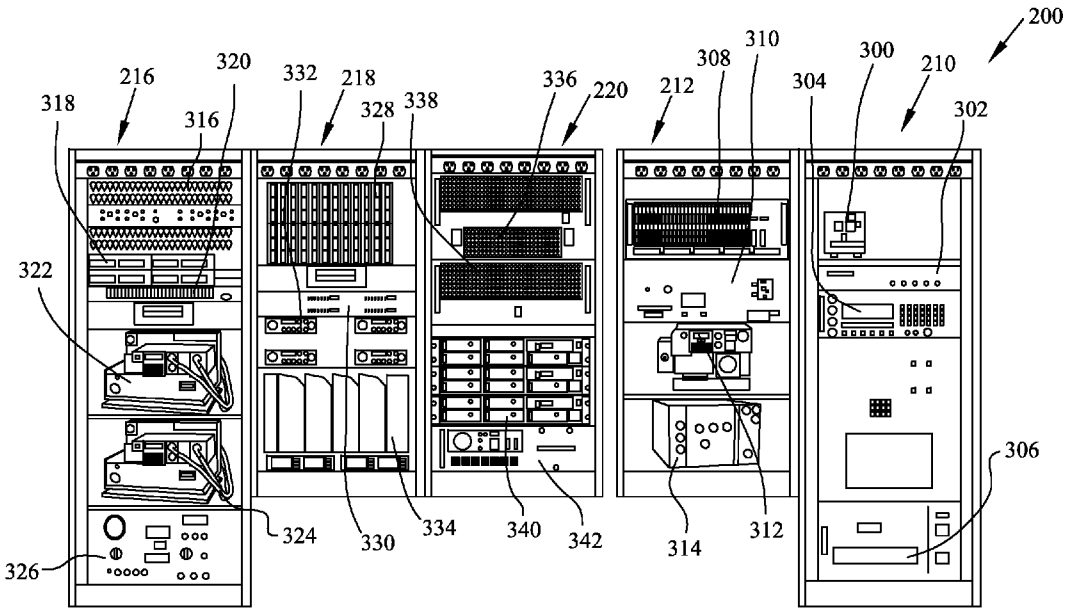
(57) **ABSTRACT**

A vehicle is provided that includes a shelter thereon that includes electronics therein. The shelter includes ports on the exterior thereof that permit data and power exchange between the vehicle and another similarly configured vehicle. The vehicle further includes dedicated wiring raceways that separate wiring having different uses.



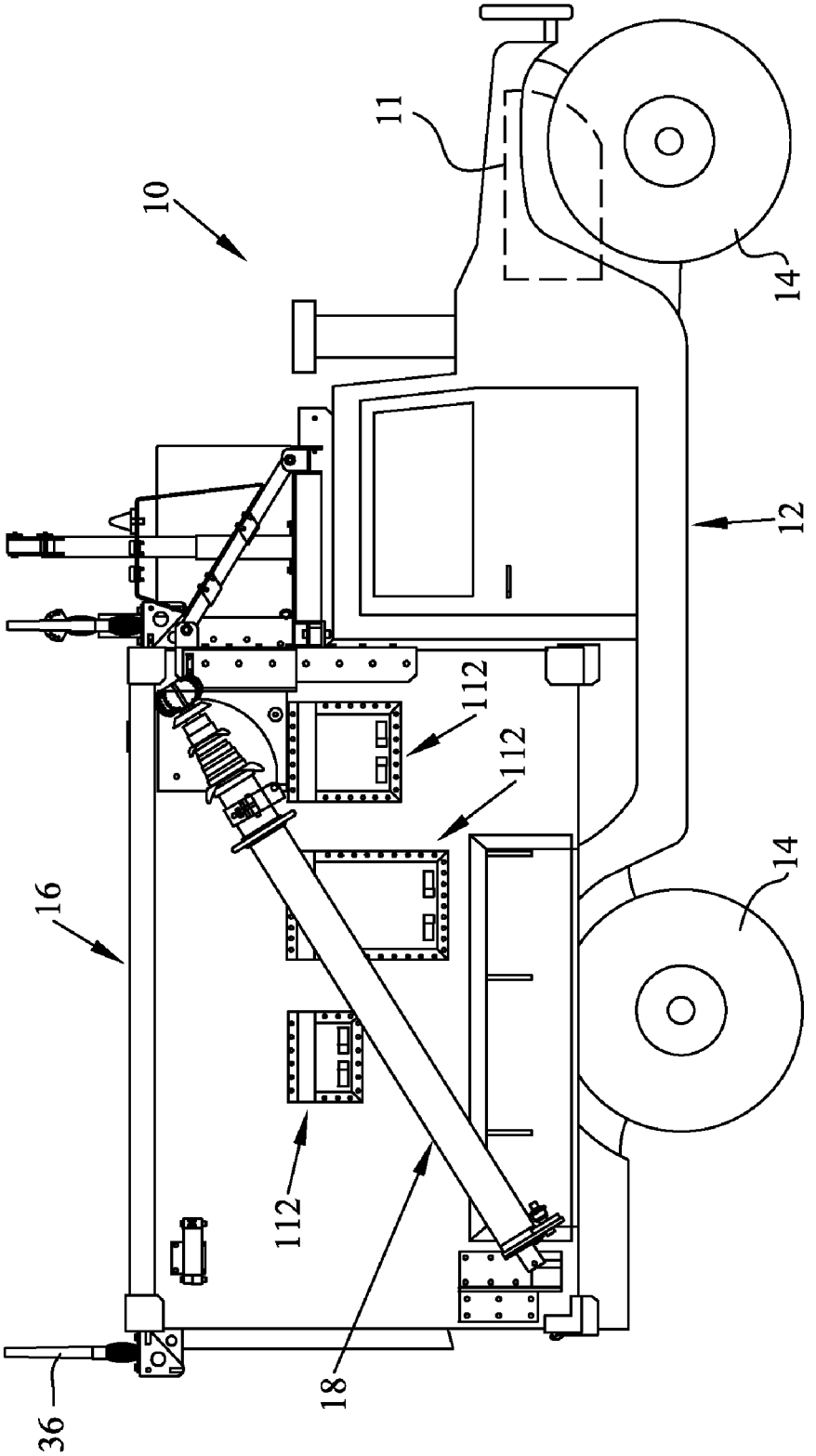


FIG. 1

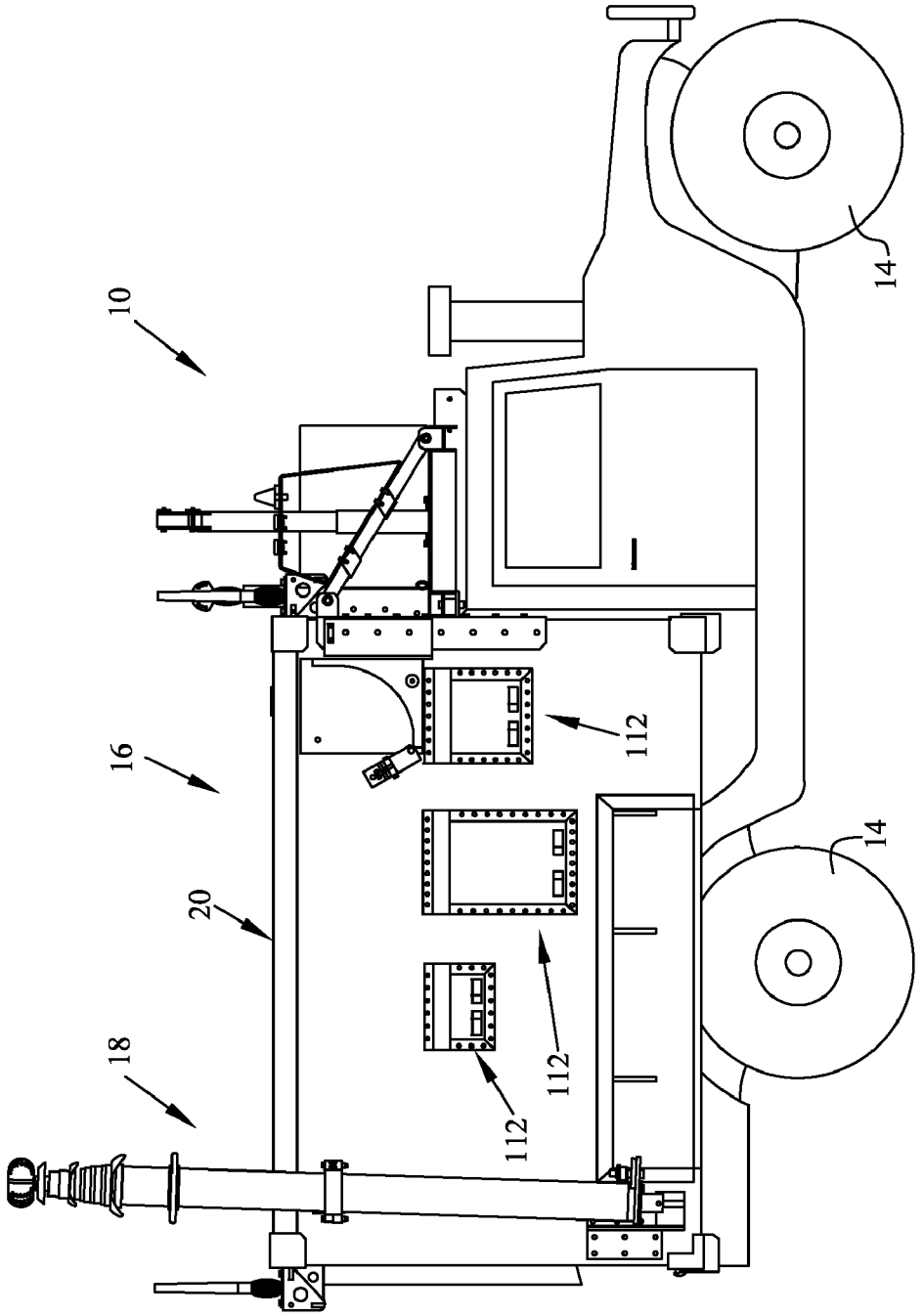


FIG. 2

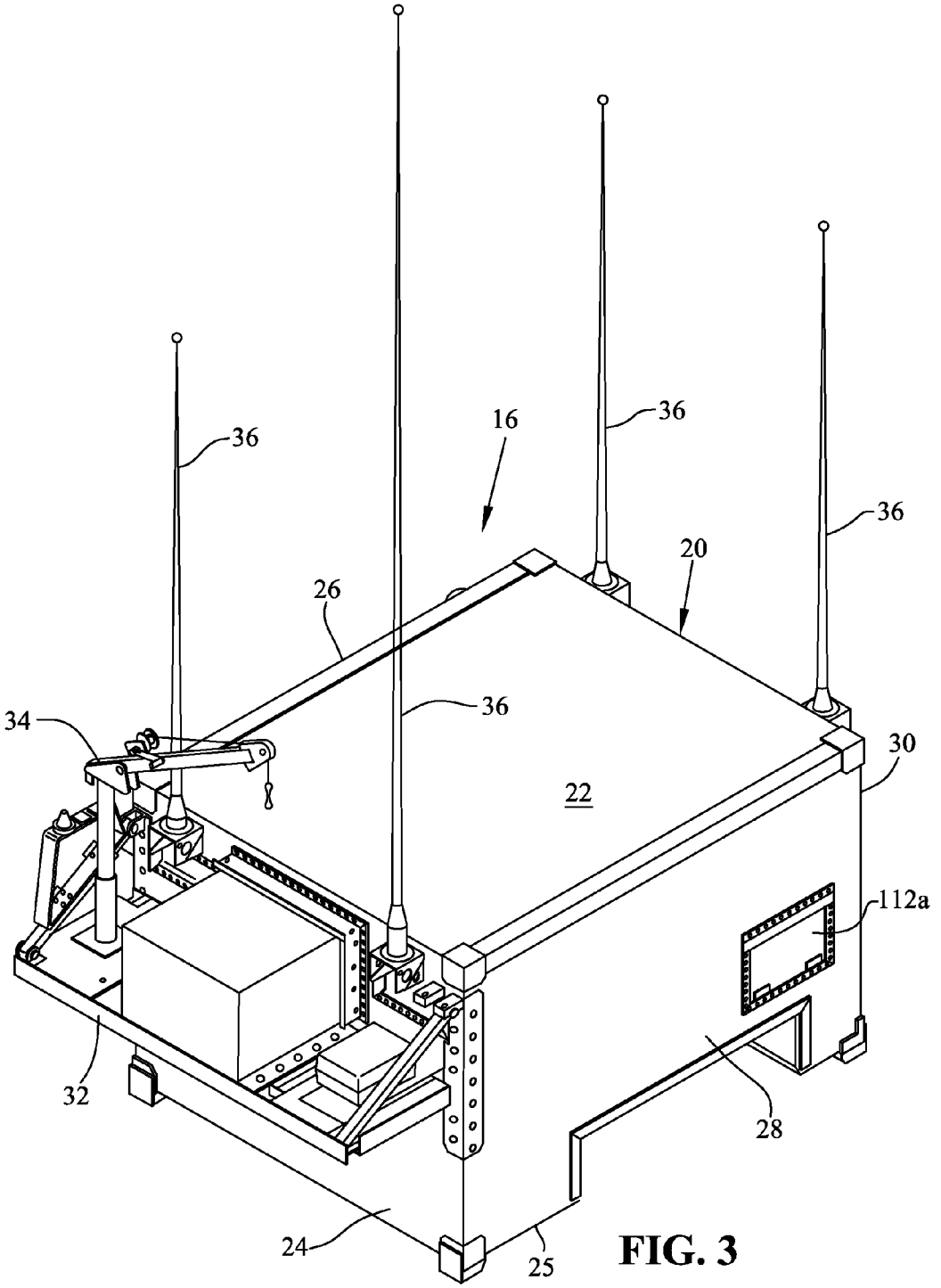


FIG. 3

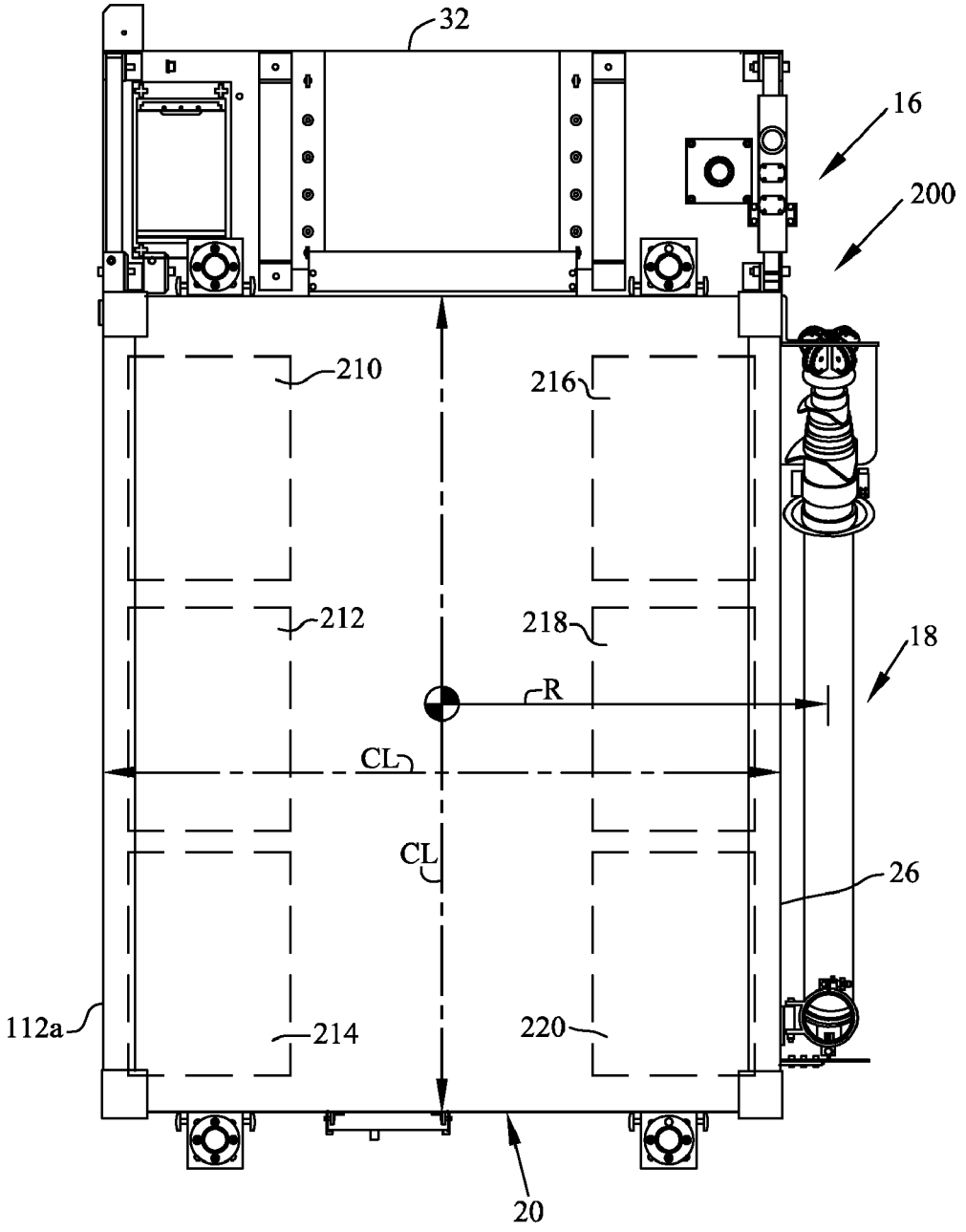
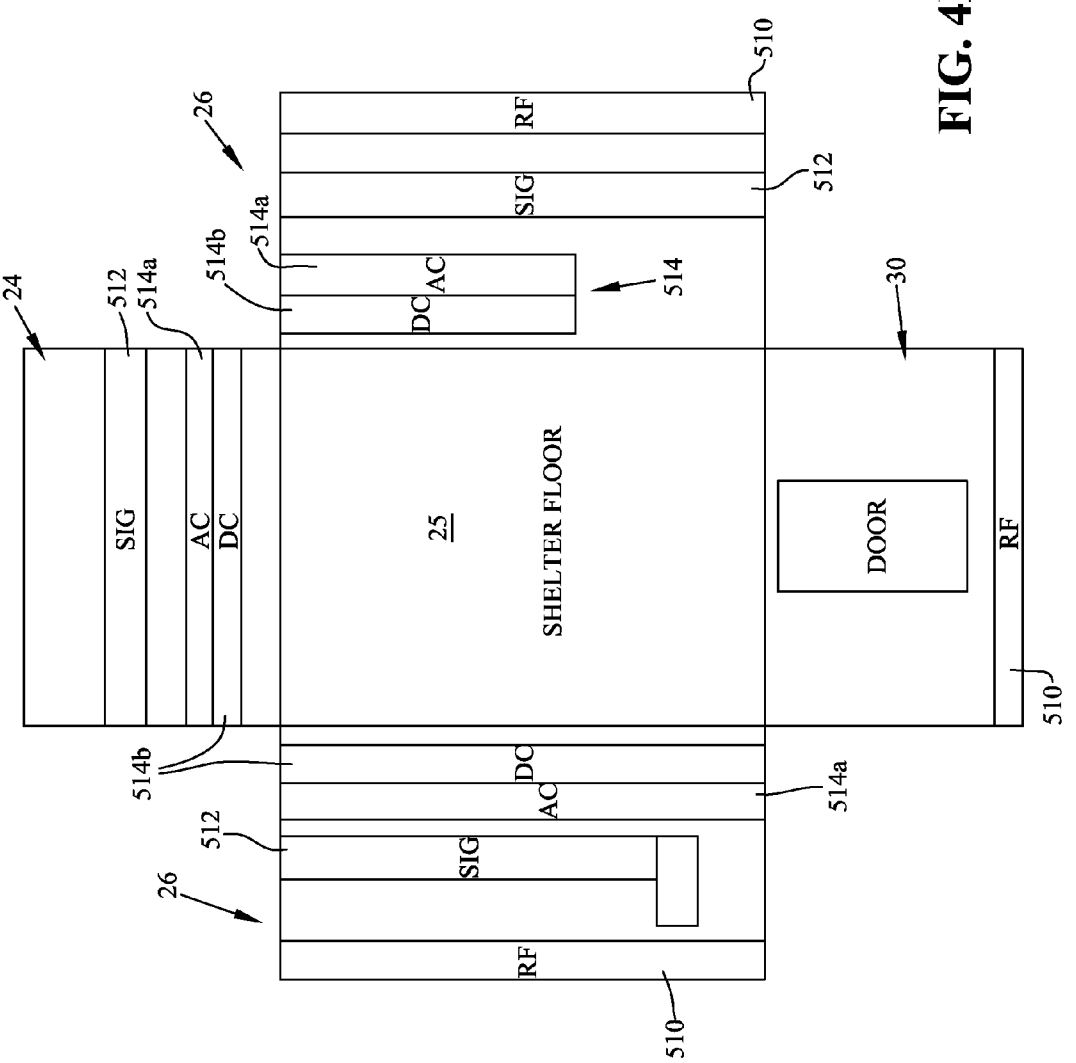


FIG. 4A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514a
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26
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FIG. 4B

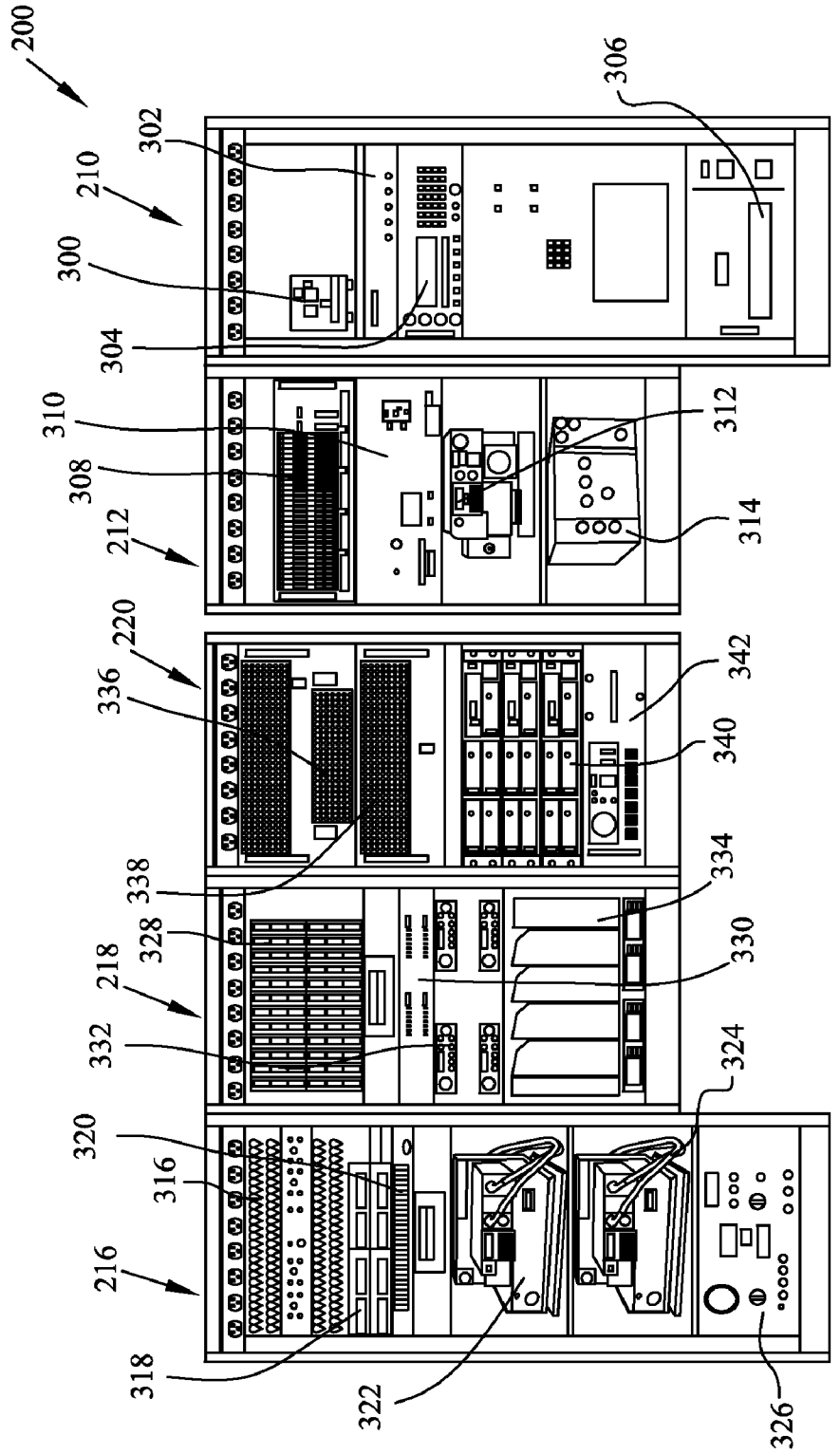
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FIG. 4C

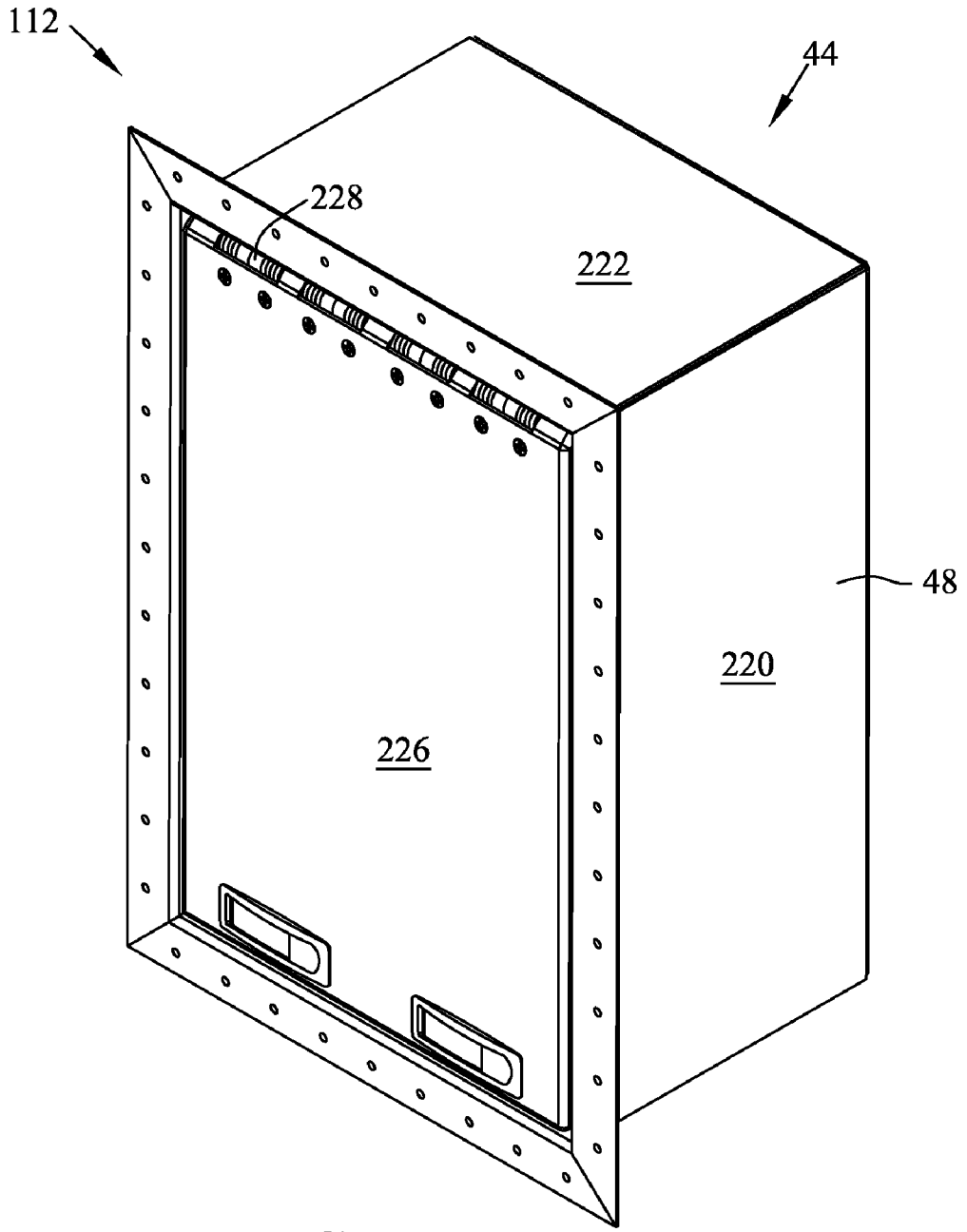

FIG. 5

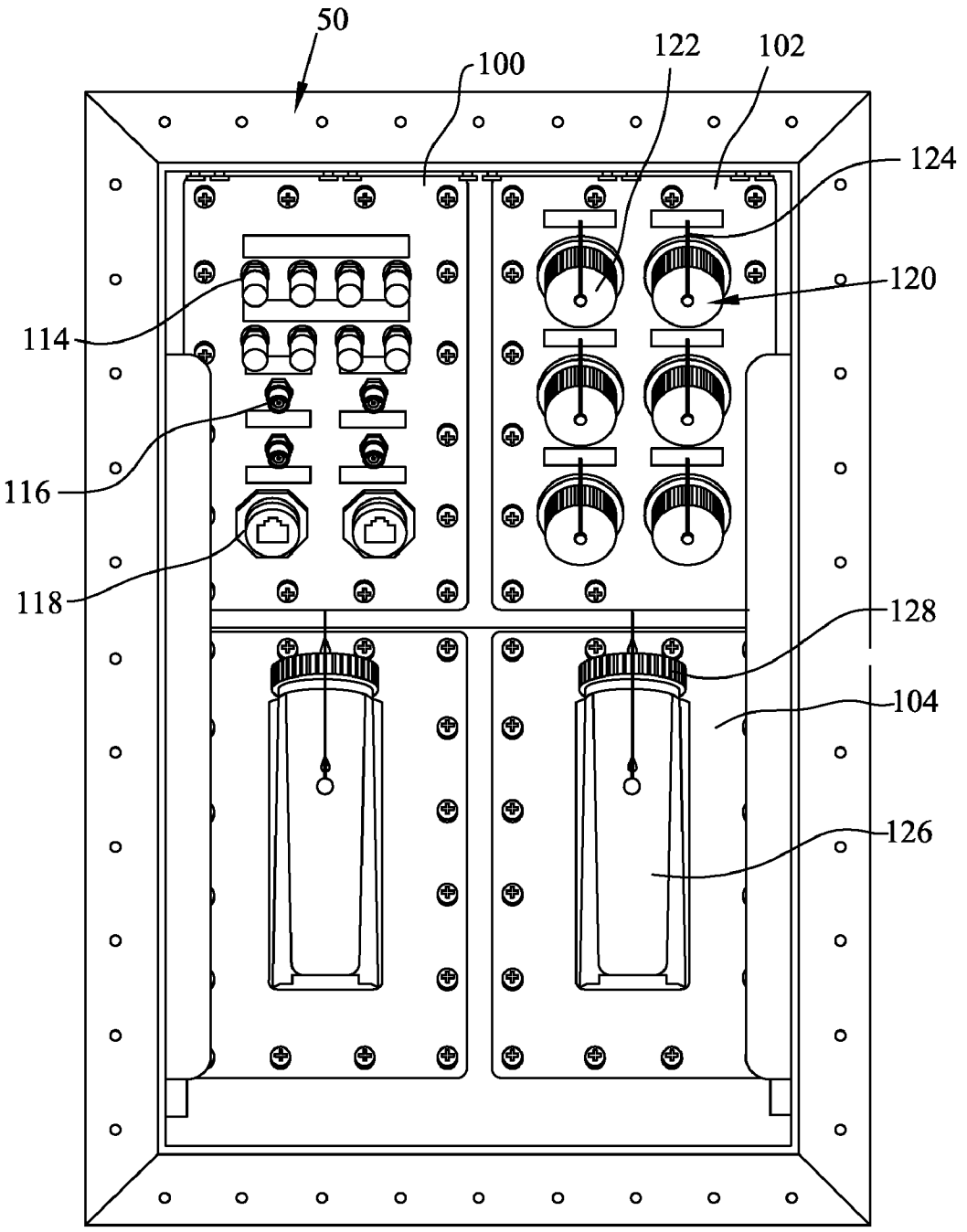

FIG. 6

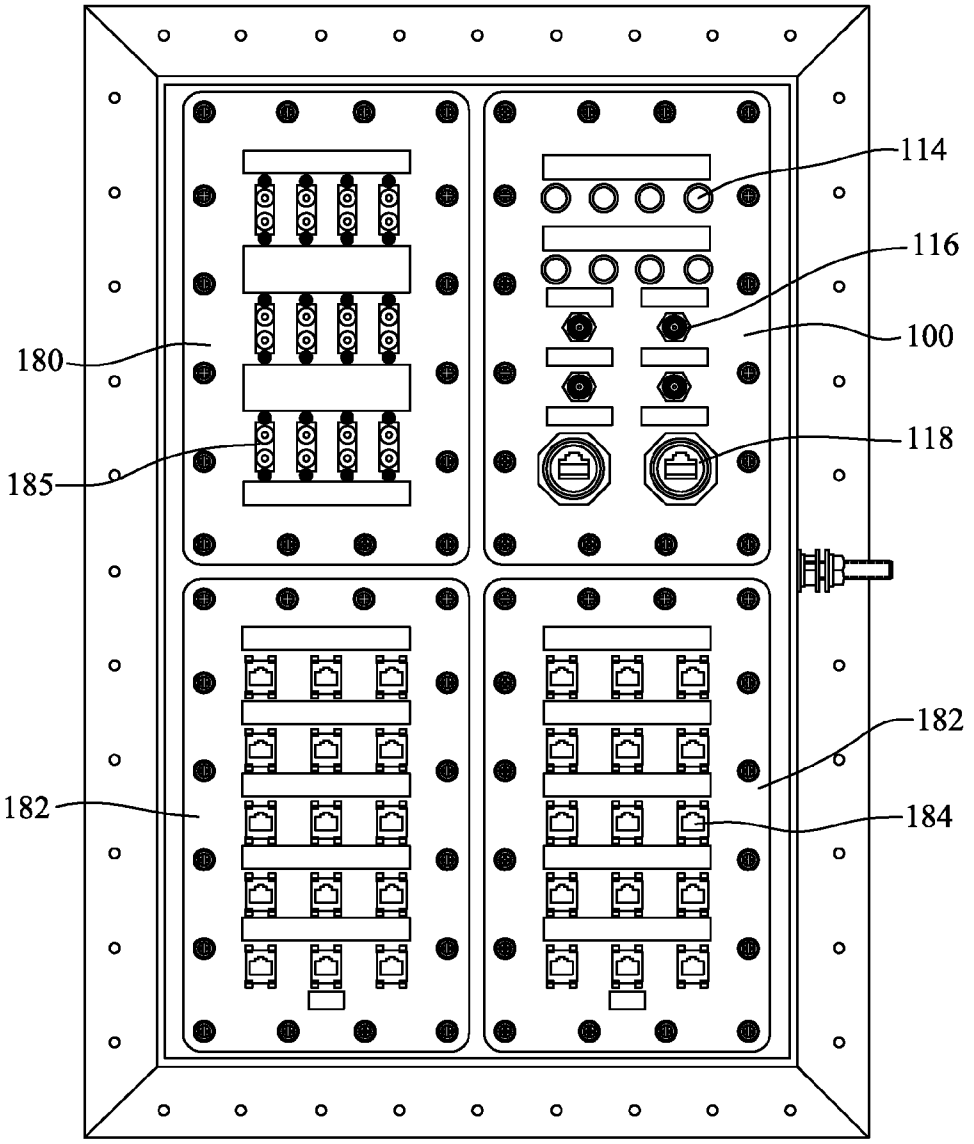

FIG. 7

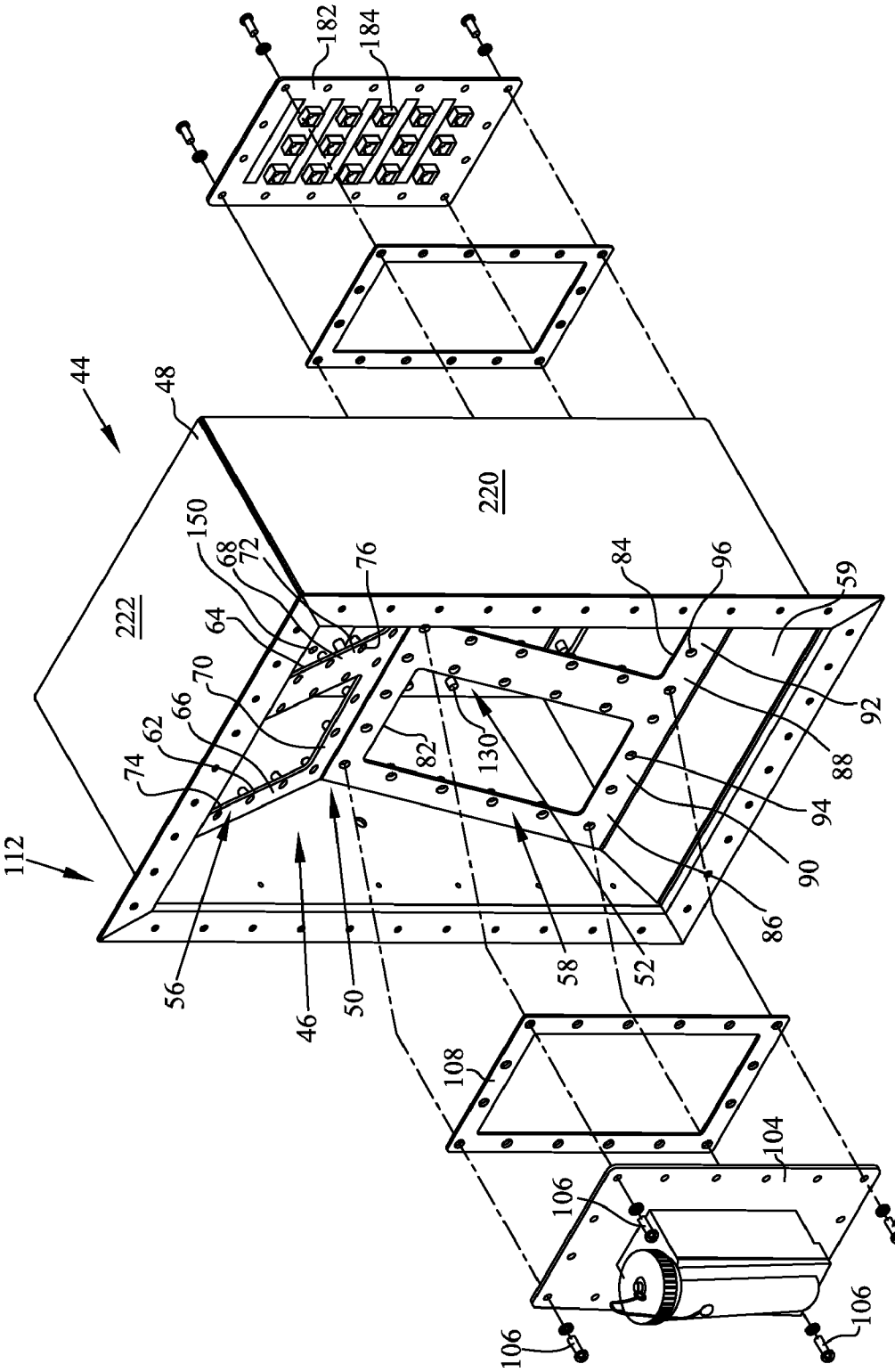
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FIG. 8

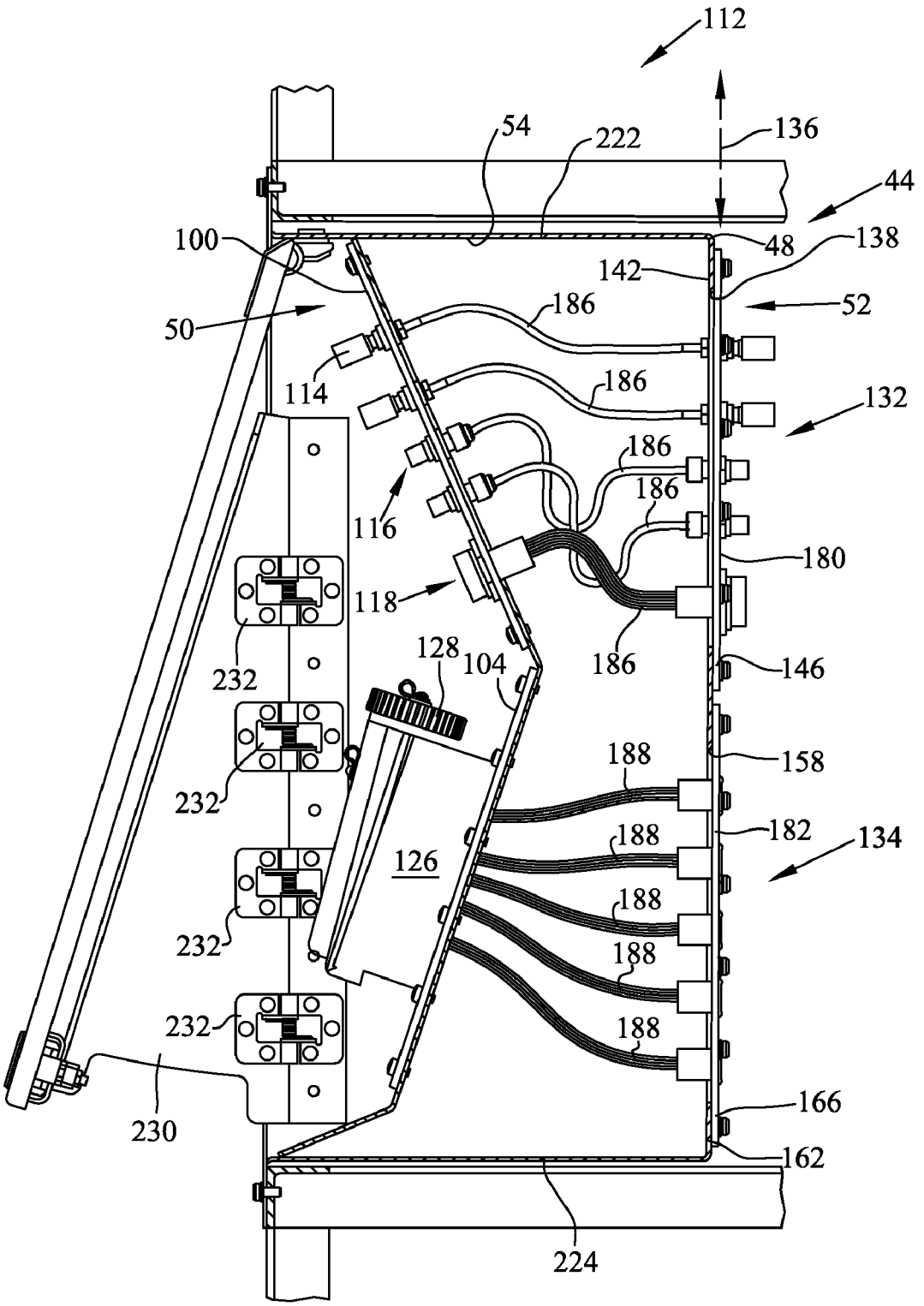
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FIG. 9

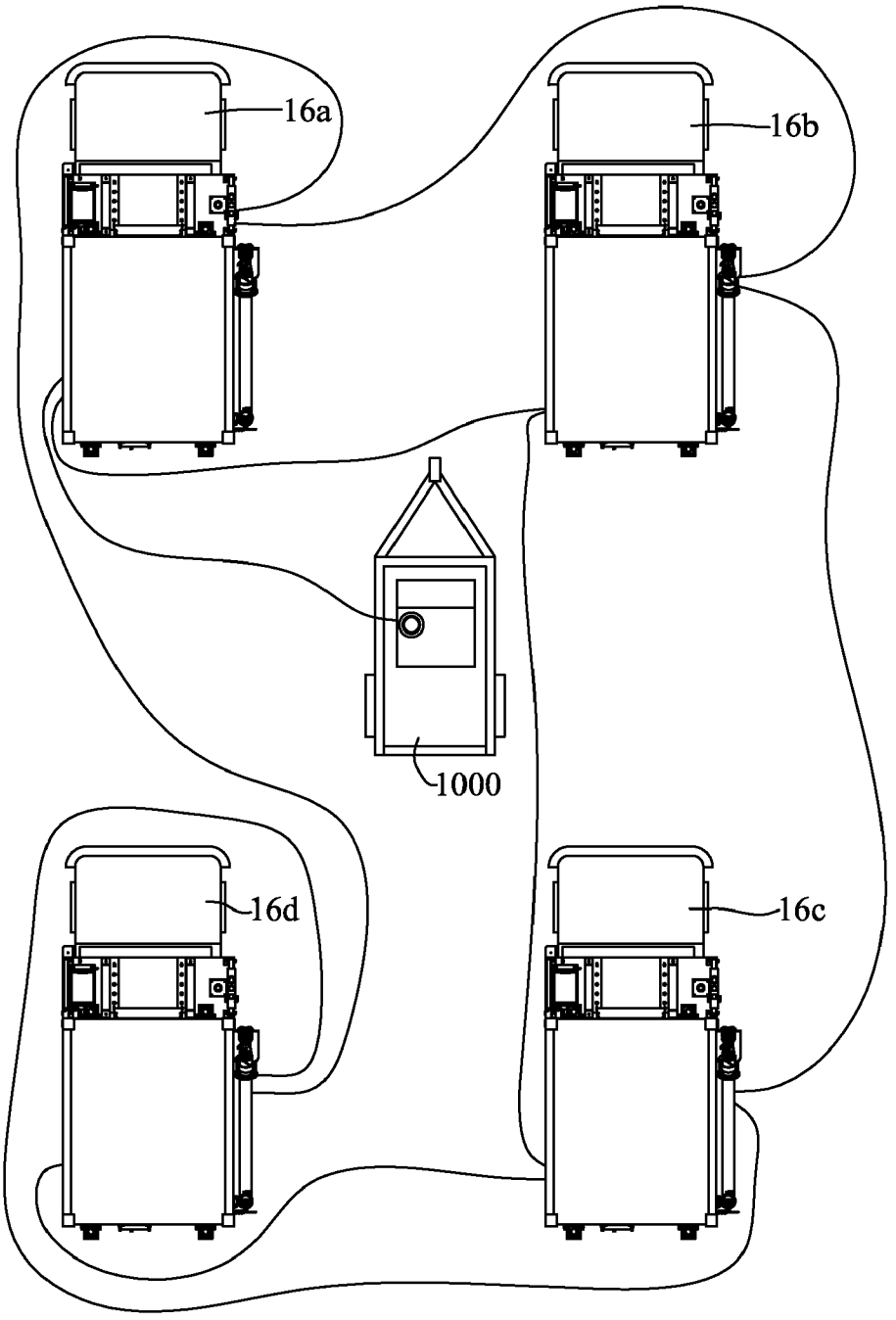

FIG. 10

COMMUNICATIONS VEHICLE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority to U.S. Provisional Patent Application Ser. No. 61/291,694, filed Dec. 31, 2009, entitled "VEHICLE AND MAST MOUNTING ASSEMBLY THEREFOR," the disclosure of which is expressly incorporated by reference herein. The present application is also related to U.S. patent application Ser. No. _____, filed _____, entitled "PROTECTIVE MEMBERS FOR A SIGNAL INTERFACE ASSEMBLY" (Attorney Docket No. NC 99,840), and U.S. patent application Ser. No. _____, filed _____, entitled "ELECTRICAL INTERFACE ASSEMBLY" (Attorney Docket No. NC 99,842), the disclosures of which are expressly incorporated by reference herein.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] The invention described herein was made in the performance of official duties by employees of the Department of the Navy and may be manufactured, used and licensed by or for the United States Government for any governmental purpose without payment of any royalties thereon.

BACKGROUND OF THE INVENTION

[0003] Oftentimes it is necessary in the commercial and military communications field to locate communications hubs and controllers in areas proximate significant events. In such situations, communications gear has been transported in cases and then assembled on site. When the communications equipment is desired at a different location, the gear is disassembled, closed up in the cases, moved to the new location, unpacked, and then reassembled.

SUMMARY OF THE INVENTION

[0004] In one embodiment, a communications assembly is provided including a shelter housing; a first cabling raceway disposed within the shelter housing, the first cabling raceway being exclusively dedicated for radio frequency transmitting cabling; a second cabling raceway disposed within the shelter housing, the second cabling raceway being exclusively dedicated for non-radio frequency data transmitting cabling; and a third cabling raceway disposed within the shelter housing, the third cabling raceway being exclusively dedicated for alternating current and direct current transmitting cabling.

[0005] In another embodiment, a method of assembling a communications assembly is provided, the method including obtaining a shelter housing having side walls, a front wall, a rear wall, a floor, and a top wall; coupling a first cabling raceway to the walls at a first height, the first cabling raceway extending generally parallel to the top wall; coupling a second cabling raceway to the walls at a second height, the second cabling raceway extending generally parallel to the top wall; coupling a third cabling raceway to the walls at a third height, the third cabling raceway extending generally parallel to the top wall; placing radio-frequency transmission cabling exclusively within the first cabling raceway; placing non-radio-frequency data transmission cabling exclusively within the second cabling raceway; and placing alternating current transmission cabling and direct current transmission cabling exclusively within the third raceway.

[0006] In still another embodiment, a communications vehicle is provided, including a vehicle frame; a shelter housing supported by the frame, the shelter housing defining an interior and an exterior; a first communication device located within the interior of the shelter housing; and a signal interface positioned on the shelter housing. The signal interface includes ports thereon in communication the first communication device. The first communication device includes software therein that permits the first communication device to control and operate a second communication device that is substantially similar to the first communication device, that is located in a shelter housing separate from the shelter housing containing the first communication device, and that is electrically coupled via a wire to the signal interface.

[0007] In another embodiment, a method of expanding a communications array is provided including the steps of providing a first shelter on a first vehicle frame, the first shelter including a first radio therein and a first signal interface accessible from the exterior of the first shelter, the first radio providing a plurality of communication channels; providing a second shelter on a second vehicle frame, the second shelter including a second radio therein and a second signal interface accessible from the exterior of the second shelter, the second radio providing a plurality of communication channels; electrically coupling ports on the first signal interface to ports on the second signal interface; and controlling all provided communications channels with the first radio.

[0008] In another embodiment, a vehicle array is provided including a first vehicle including a power input interface and a power output interface; a second vehicle including a power input interface and a power output interface; a power generator having a power output interface; a first power cable linking the power output interface of the power generator to the power input interface of the first vehicle; and a second power cable linking the power output interface of the first vehicle to the power input interface of the second vehicle.

[0009] In another embodiment, a method of powering a vehicle array is provided including the steps of providing a first vehicle having a frame and a first shelter supported on the frame, the first shelter including a power input interface and a power output interface; providing a second vehicle having a frame and a second shelter supported on the frame, the second shelter including a power input interface and a power output interface; providing a power generator having a power output; coupling the power output of the power generator to the power input interface of the first vehicle such that the power generator provides power to electronics housed within the first shelter; coupling the power output interface of the first shelter to the power input interface of the second shelter to provide power to electronics housed within the second shelter.

[0010] In another embodiment, a method of transporting a communications array is provided. The method including the steps of providing a first vehicle having a frame and a first shelter supported on the frame at a first location, the first shelter including plurality of communications devices therein, the communications devices being coupled to each other and to a signal interface disposed on the first shelter, the signal interface providing a plurality of ports that are accessible on the exterior of the first shelter; providing a second vehicle having a frame and a second shelter supported on the frame at the first location, the second shelter including plu-

rality of communications devices therein, the communications devices being coupled to each other and to a signal interface disposed on the second shelter, the signal interface providing a plurality of ports that are accessible on the exterior of the second shelter; providing interconnect cables that interface with the signal interfaces of the first and second shelters to provide data connections between the plurality of electronics in the first and second shelters; uncoupling the interconnect cables from the first and second shelters; driving the first and second vehicles to a second location; and coupling the interconnect cables to the signal interfaces of the first and second shelters to provide data connections between the plurality of electronics in the first and second shelters at the second location.

[0011] In another embodiment, a vehicle is provided including a frame, an engine supported by the frame, the engine operatively coupled to ground engaging members and capable of imparting motion to at least one of the ground engaging members; a shelter housing coupled to the frame and dependent upon the frame for supporting the shelter housing; a first communication device located within the interior of the shelter housing; and a signal interface positioned on the shelter housing, the signal interface including ports thereon in communication the first communication device; wherein the first communication device includes software therein that permits the first communication device to control and operate a second communication device that is substantially similar to the first communication device, that is located in a shelter housing separate from the shelter housing containing the first communication device, and that is electrically coupled via a wire to the signal interface.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. **1** is a side view of the vehicle of the present disclosure in a mobile configuration;

[0013] FIG. **2** is a side view of the vehicle of FIG. **1** in a stationary configuration;

[0014] FIG. **3** is a front left perspective view of the shelter carried by the vehicle of FIG. **1**;

[0015] FIG. **4**A is a top view of the shelter of FIG. **3**;

[0016] FIG. **4**B is a top view showing flattened out walls of the shelter of FIG. **3**;

[0017] FIG. **4**C is a side view of racks and electronics located within the shelter of FIG. **3**;

[0018] FIG. **5** is a perspective view of a connection housing of the shelter of FIG. **3**;

[0019] FIG. **6** is a plan view of a first set of connections present within the connection housing of FIG. **5**;

[0020] FIG. **7** is a plan view of a second set of connections present within the connection housing of FIG. **5**;

[0021] FIG. **8** is an exploded perspective view of the housing and connections of FIG. **6**;

[0022] FIG. **9** is a side partially-cross sectional view of the housing and connections of FIGS. **6** and **8**; and

[0023] FIG. **10** is an overhead view of four of the vehicles of FIG. **1** that are coupled together and to a power generator.

DETAILED DESCRIPTION

[0024] With reference first to FIG. **1**, a vehicle **10** is disclosed which as disclosed is depicted as a truck, and more particularly as a military vehicle. It should be understood that the disclosure is equally applicable to commercial vehicles for use, for example, in radio or TV broadcasting or in any other application in which mobile and extensible communications devices are utilized.

[0025] As shown, vehicle **10** comprises a frame **12**, and ground engaging members **14** which support the frame **12**. Engine **11** provides power to at least one ground engaging member **14**. As depicted, ground engaging members **14** are shown as tires and wheels, however it should be understood that other ground engaging members such as tracks or skis could be employed. The invention is equally applicable to any water flotation devices. As shown, a shelter assembly **16** is supported by the vehicle frame **12** and includes a mast assembly **18**. Shelter assembly **16** is positioned on frame **12** in a fixed manner such that parts of vehicle **10** such as ground engaging members **14**, engine **11**, and frame **12**, etc. have a fixed spatial relationship with shelter assembly **16**.

[0026] FIG. **1** shows vehicle **10** having mast assembly **18** and antennae **36** in stowed positions suitable for transport. FIG. **2** shows mast assembly **18** in a vertical position that is ready for extension. Additional details of the mast assembly **18** are provided in U.S. Provisional Patent Application Ser. No. 61/291,694, filed Dec. 31, 2009, entitled "VEHICLE AND MAST MOUNTING ASSEMBLY THEREFOR," the disclosure of which has been expressly incorporated by reference herein.

[0027] With respect now to FIG. **2**, shelter assembly **16** is shown in greater detail. Shelter assembly **16** includes an enclosure **20** having a top wall **22**, a front wall **24**, lower wall **25**, side walls **26**, **28** and rear wall **30**. Shelter assembly **16** could also include a front work platform **32** including a hoist **34**, as well as a plurality of antennas positioned around enclosure **20** and shown generally at **36**. Walls **24**, **26**, **28**, **30** include or potentially include signal interface assemblies **112** disposed therein. Shelter assembly **16** further includes cabling raceways **510**, **512**, **514** disposed therein, shown in FIG. **4**B.

[0028] Shelter assembly **16** houses a plurality of electronic racks **210**, **212**, **216**, **218**, **220** and safe **214** therein, shown in FIG. **4**. Electronic equipment **200** is located on electronic racks **210**, **212**, **216**, **218**, **220** according multiple considerations. These considerations include, but are not limited to, weight of the equipment **200**, center of gravity of shelter assembly **16**, interconnections needed between equipment **200**, cabling sizes of the interconnections, and cabling weight of the interconnections.

[0029] Equipment **200** is generally communications equipment including but not limited to: Ethernet switches, power distributors, speakers, headset interfaces, keyboards, filters, power supplies (uninterruptible or otherwise), PCI bus bays, servers, modems, encryption devices, secure terminal equipment devices, multi-band radios/transceivers (high frequency, very high frequency, and ultra high frequency), amplifiers for the radios, power supplies for the radios, mercury interface unit, GPS distribution system, low volume terminals, voice cable kit, and Ethernet kit.

[0030] As previously noted, equipment **200** requires interconnections. Equipment **200** further requires power. Raceways **510**, **512**, **514** are provided within for data, RF, and power cable routing and management. Raceways **510**, **512**, **514** include upper raceways **510**, middle raceways **512**, and lower raceways **514**. Each raceway **510**, **512**, **514** generally extends along walls **24**, **26**, **30** parallel to top wall **22** at different heights. Raceways **510** contain and route radio frequency (RF) cabling exclusively. Raceways **510** are located

proximate the top of shelter assembly **16** because RF cables connect radios to antennae **36** and antennae **36** are located at the external top wall **22** of shelter assembly **16**. Raceways **512** contain and route data connections exclusively. Raceways **512** are positioned midway up walls **24**, **26**. Such positioning places raceways **512** and the cabling therein proximate the positioning of signal interface assemblies **112** that provide external connections for the data cabling. Raceways **514** contain and route power cables exclusively. Raceways **514** are internally divided to provide sub-raceways **514***a*, **514***b*. Raceways **514***a* contain and route alternating current (AC) power cables exclusively. Raceways **514***b* contain and route direct current (DC) power cables exclusively. Raceways **514** are located proximate lower wall **25** on walls **24**, **26**. However, raceways **514** do not abut shelter floor **27**. Separation from shelter floor **27** permits raceways **514** to remain straight while clearing any wall **26** irregularities necessitated by a wheel well of vehicle **10**. Furthermore, separation from shelter floor **27** decreases the likelihood of electrical complications should water collect on shelter floor **27**.

[0031] By separating the cabling into exclusive raceways **510**, **512**, **514**, the potential for cross-talk and data corruption is thereby lessened. Furthermore, the reduced likelihood of data corruption allows the use of interconnection wires having less shielding relative to those that would be needed in a mixed cabling environment. Cables having less shielding are lighter than the more heavily shielded cabling. Lower weight cabling, and lower weight in general, affect the weight distribution within shelter assembly **16** and the handling of vehicle **10**. In general, lower weight components and lower overall weight lessen the size and cost of support components needed to support shelter assembly **16** on vehicle **10** both while stationary and while in motion. Additionally, cables with less shielding have a generally smaller cross-sectional area than equivalent cables with more shielding. Accordingly, an increased number of wires can be fit in a given space, such as raceways **510**, **512**, **514**.

[0032] Raceways **510**, **512**, **514** allow the routing of data, RF, and power cables to relevant signal interface assemblies **112** and/or power interface assemblies **112** and/or antennae **36**. Signal interface assembly **112** is illustratively configured to provide for simple and efficient electrical communication between an exterior **40** of shelter assembly **16** and an interior **42** of shelter assembly **16**. More particularly, the signal interface assembly **112** permits communication (e.g., communication signals, electrical power, etc.) between equipment external to shelter assembly **16** and to equipment secured within shelter assembly **16**. As indicated above, signal interface assembly **112** may be positioned within a vertical support structure, such as vertical wall **24**, **26**, **28**, **30** of shelter assembly **16**.

[0033] Signal interface assemblies **112** illustratively include support **44** having frame **46** coupled to housing **48**. Frame **46** is illustratively formed of a durable material, such as aluminum, and includes an outer frame **50** and an inner frame **52** spaced apart from each other and defining a chamber **54** therebetween.

[0034] Outer frame **50** includes upper frame member **56** coupled to lower frame member **58**. Both upper frame member **56** and lower frame member **58** are angled relative to each other. Water deflector **59** is coupled to lower frame member **58** and is configured to prevent water from collecting at the bottom of signal interface assembly **112**. More particularly, deflector **59** is angled downwardly for directing water downwardly and outwardly from signal interface assembly **112**.

[0035] Upper frame member **56** includes first and second openings **62** and **64** defined by rectangular mounting flanges **66** and **68**, respectively. Outer surfaces of mounting flanges **66** and **68** define respective gasket seats **70** and **72**. A plurality of mounting apertures **74** and **76** extend through each mounting flange **66** and **68**, respectively.

[0036] Lower frame member **58** includes first and second openings **82** and **84** defined by rectangular mounting flanges **86** and **88**, respectively. Outer surfaces of mounting flanges **86** and **88** define respective gasket seats **90** and **92**. A plurality of mounting apertures **94** and **96** extend through each mounting flange **86** and **88**, respectively.

[0037] A plurality of outer or external electrical interface panels **100**, **102**, **104** are removably coupled the outer frame **50** by a plurality of fasteners, illustratively bolts **106** received within mounting apertures **74**, **76**, **94**, **96** of respective frame members **56**, **58**. Electromagnetic interference (EMI) gasket **108** is received intermediate each interface panel **100**, **102**, **104** and its respective gasket seat **70**, **72**, **90**, **92**. EMI gasket **108** is illustratively formed of an electrically conductive material, such as wire mesh material. In one illustrative embodiment, EMI gasket **108** comprises a carbon-filled cellular PTFE matrix. Pressure sensitive adhesive (PSA) may be supported by a rear surface of matrix.

[0038] Each outer electrical interface panel **100**, **102** and **104** may be customized with a variety of different electrical connectors or ports. As further detailed herein, panels **100**, **102**, and **104** are modular and may be easily removed and replaced with other panels **100**, **102**, and **104** as desired.

[0039] In the illustrative embodiment, electrical interface panel **100** includes connectors **114**, **116**, and **118**. Electrical interface panel **102** illustratively includes electrical connectors **120**. Protective caps **122** may be releasably coupled to connectors **120** and are retained to panel **102** by cords **124**. Electrical interface panel **104** illustratively includes electrical connectors **126** which may include threadably coupled protective caps **128**. It should be appreciated that external panels **100**, **102**, **104** can be used as internal panels, described below, as desired.

[0040] Inner frame **52** illustratively includes upper frame member **132** and lower frame member **134** disposed within common plane **136**. Upper frame member **132** includes first and second openings **138** (only one shown) defined by rectangular mounting flanges **142**. Outer surfaces of mounting flanges **142** define gasket seats **146**. A plurality of mounting apertures **150** extend through each mounting flange **142**. Lower frame member **134** includes first and second openings **158** (only one shown) defined by rectangular mounting flanges **162**. Outer surfaces of mounting flanges **162** define gasket seats **166**. A plurality of mounting apertures **170** extend through each mounting flange **162**.

[0041] A plurality of inner or internal electrical interface panels **100**, **180**, **182** are removably coupled the inner frame **52** by a plurality of fasteners, illustratively bolts **106** received within mounting apertures **150**, **170** of respective frame members **132** and **134**. Each inner electrical interface panel **100**, **180**, **182** may be customized with a variety of different electrical connectors or ports **114**, **116**, **118**, **184**. Panels **100**, **180**, **182** are modular and may be easily removed and replaced with other panels as desired.

[0042] In the illustrative embodiment, electrical interface panels **100**, **180**, **182** include connectors **114**, **116**, **118**, **184**,

185 suitable for receiving interconnect wires **186** able to transmit radio control signals, data signals, and radio transmissions as well as wires **188** able to transmit power.

[0043] Electrical wires or cables **186**, **188** interconnect outer panels **100**, **102**, **104** to inner panels **100**, **180**, **182**. More particularly, cables **186**, **188** extend through chamber **54** of the support **44**.

[0044] Housing **48** illustratively includes first and second vertical walls **220** interconnected by top and bottom walls **222**, **224** to define a protective enclosure surrounding frame **46** and protecting it from debris and external elements.

[0045] Movable cover **226** is coupled to housing **48** through a first or horizontal hinge **228**. Cover **226** is movable between a stowed position substantially vertical, shown in FIG. **5**, to a deployed position offset from vertical, shown in FIG. **9**, to a fully opened position approximately 180 degrees from the closed position.

[0046] A pair of side shields or wings **230** are supported by a pair of second or vertical hinges **232**. Side wings **230** are configured to move from a stowed position to a deployed position by rotating or pivoting about a substantially vertical axis.

[0047] By choosing the connectors and interface panels **100**, **102**, **104**, external access points are created to link electronics **200** within shelter assembly **16** to electronics **200** within other similar shelter assemblies **16** or elsewhere. In one example, vehicle **10** pulls a mobile power generator **1000**. Mobile power generator **1000** may have signal interface assemblies **112** of its own that, along with proper interconnect wiring, provide for interconnection with shelter assembly **16**. Alternatively, power generator **1000** may have hardwired cabling that couples to interface panels **100**, **102**, **104**. Shelter assembly **16** includes at least two interface panels **100**, **102**, **104** capable of transmitting power. In the provided example, power transmitting interface panels **100**, **102**, **104** are located in signal interface assembly **112***a* located in the left rear side wall **28** of shelter assembly **16**, shown in FIG. **3**. A first power interface panel **100**, **102**, **104** receives power from an external source such as mobile power generator **1000** or from another shelter assembly **16**. A second power interface panel **100**, **102**, **104** is present to provide power to other shelter assemblies **16**. Thus, a plurality of shelter assemblies **16** can be daisy-chained together to receive power from a single mobile power generator **1000** or otherwise.

[0048] As previously discussed, electronic equipment **200** is located on electronic racks **210**, **212**, **216**, **218**, **220** according multiple considerations. By way of example shown in FIG. **4**C, rack **210** includes, cryptographic security device **300**, pre/post selector **302**, High Frequency (HF) communications device **304**, and Data Terminal Set for radio communications **306**. Rack **212** includes tactical data system to fiber converter **308**, digital voice conferencing switch **310**, tactical HF and VHF radio **312**, and Multifunctional Information Distribution System **314**. Rack **216** includes Ethernet patch panels **316**, Multiservice Access Router **318**, Ethernet Switch **320**, multiband manpack radios **322**, **324**, and multichannel transceiver **326**. Rack **218** includes serial patch panels **328**, modems **330**, encryption device **332**, and data secure terminal equipment **334**. Rack **220** includes coded communications device **336**, PCI expansion chassis **338**, Common Aviation Command and Control System **340**, and universal power supply **342**.

[0049] Notably, High Frequency (HF) communications device **304** is able to provide/control/connect four channels of HF communication. However, electronics **200** overall are able to control more, for example 16, channels of HF communication. Accordingly, the limitations of High Frequency (HF) communications device **304** restrict the number of channels of HF communication controlled by a lone shelter assembly **16**. To overcome this limitation, external connectors **114-116**, present in signal interface assemblies **112**, are provided. External connectors **114-116** of one shelter assembly **16** are coupled, via CAT5 cable or otherwise, to one or more other shelter assemblies **16**. This connection allows the electronics **200** of one shelter assembly **16***a*, FIG. **10**, to control and link the electronics **200** of the other shelter assemblies **16***b-d*, including the High Frequency (HF) communications devices **304** thereof. Accordingly, while each shelter assembly **16***a-d* contains a High Frequency (HF) communications device **304** that can control and link four channels of communication, by linking the shelter assemblies **16**, a single shelter assembly **16** can control and link up to sixteen channels of communication. Thus, operators in one shelter assembly **16** can control the electronics **200** in multiple shelter assemblies **16**. Similarly, a single power generator **1000** can couple to shelter assembly **16***a* to provide power thereto. Shelter assemblies **16***b-c* are then connected in a daisy-chain fashion to shelter assembly **16***a* and power generator **1000** to provide power to all shelter assemblies **16***a-d* as shown in FIG. **10**.

[0050] Accordingly, vehicle **10** provides a platform for transporting a shelter assembly **16**. When shelter assembly **16** is brought into the company of other similar shelter assemblies **16**, shelter assemblies **16** can be linked for data and power via connections in signal interface assemblies **112**. Furthermore, adjacent connected shelter assemblies **16** can be quickly detached. When detached, the respective shelter assemblies **16** can be quickly moved via respective vehicles **10**.

[0051] While this invention has been described as having an exemplary design, the present invention may be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains.

What is claimed is:

1. A communications assembly including:

a shelter housing;

a first cabling raceway disposed within the shelter housing, the first cabling raceway being exclusively dedicated for radio frequency transmitting cabling;

a second cabling raceway disposed within the shelter housing, the second cabling raceway being exclusively dedicated for non-radio frequency data transmitting cabling; and

a third cabling raceway disposed within the shelter housing, the third cabling raceway being exclusively dedicated for alternating current and direct current transmitting cabling.

2. The communications assembly of claim **1**, further including first cabling disposed within the first cabling raceway, the first cabling being coupled to at least one radio antenna.

3. The communications assembly of claim **1**, further including second cabling disposed within the second cabling raceway, the second cabling being coupled to at least one non-radio frequency data transmission source.

4. The communications assembly of claim **3**, wherein the second cabling is further coupled to a signal interface assembly, the signal interface assembly providing a port accessible to the outside of the shelter housing, the port shaped and sized to receive a cable therein to electrically couple the cable to the at least one non-radio frequency data transmission source.

5. The communications assembly of claim **1**, further including third cabling disposed within the third cabling raceway, the third cabling being coupled to an electronic device, the electronic device receiving power from the third cabling.

6. The communications assembly of claim **5**, wherein the third cabling is further coupled to a signal interface assembly, the signal interface assembly providing a port accessible to the outside of the shelter housing, the port shaped and sized to receive a cable therein to electrically couple the cable to the electronic device.

7. The communications assembly of claim **6**, wherein the cable provides power to the electronic device.

8. The communications assembly of claim **6**, wherein the cable transmits power from the electronic device.

9. The communications assembly of claim **6**, wherein the cable is further coupled to a power generator.

10. The communications assembly of claim **1**, wherein the first raceway extends generally parallel to a top of the shelter assembly and at a first distance from the top of the shelter assembly.

11. The communications assembly of claim **10**, wherein the second raceway extends generally parallel to the top of the shelter assembly and at a second distance from the top of the shelter assembly, the second distance being greater than the first distance.

12. The communications assembly of claim **11**, wherein the third raceway extends generally parallel to the top of the shelter assembly and at a third distance from the top of the shelter assembly, the third distance being greater than the second distance.

13. A method of assembling a communications assembly, the method including:

obtaining a shelter housing having side walls, a front wall, a rear wall, a floor, and a top wall;

coupling a first cabling raceway to the walls at a first height, the first cabling raceway extending generally parallel to the top wall;

coupling a second cabling raceway to the walls at a second height, the second cabling raceway extending generally parallel to the top wall;

coupling a third cabling raceway to the walls at a third height, the third cabling raceway extending generally parallel to the top wall;

placing radio-frequency transmission cabling exclusively within the first cabling raceway;

placing non-radio-frequency data transmission cabling exclusively within the second cabling raceway; and

placing alternating current transmission cabling and direct current transmission cabling exclusively within the third raceway.

14. The method of claim **13**, further including the step of coupling the radio frequency transmission cabling to an antenna coupled to the shelter housing and coupling the radio frequency transmission cabling to a radio located within the shelter housing.

15. The method of claim **13**, further including the step of coupling the non-radio-frequency data transmission cabling to a signal interface assembly, the signal interface assembly providing a port accessible to the outside of the shelter housing, the port shaped and sized to receive an interconnect cable therein to electrically couple the interconnect cable to the non-radio-frequency data transmission cabling.

16. The method of claim **13**, further including the step of coupling the alternating current transmission cabling and direct current transmission cabling to a signal interface assembly, the signal interface assembly providing a port accessible to the outside of the shelter housing, the port shaped and sized to receive an interface cable therein to electrically couple the electrical interface cable to the electronic device.

17. The method of claim **16**, further including the step of coupling the electrical interface cable to a power source to permit electrical current to flow therethrough.

18. The method of claim **16**, further including the step of coupling the electrical interface cable to a second signal interface assembly that is part of a second shelter housing.

19. The method of claim **13**, further including the step of locating the shelter housing on a readily transportable vehicle.

20. A communications vehicle, including:

a vehicle frame;

a shelter housing supported by the frame, the shelter housing defining an interior and an exterior;

a first communication device located within the interior of the shelter housing; and

a signal interface positioned on the shelter housing, the signal interface including ports thereon in communication the first communication device; wherein the first communication device includes software therein that permits the first communication device to control and operate a second communication device that is substantially similar to the first communication device, that is located in a shelter housing separate from the shelter housing containing the first communication device, and that is electrically coupled via a wire to the signal interface.

21. The vehicle of claim **20**, wherein the first and second communication devices are radios.

22. The vehicle of claim **21**, wherein each radio independently provides four channels of radio frequency communication.

23. The vehicle of claim **22**, wherein the first radio, when coupled to the second radio, controls all provided channels of radio frequency communication.

24. A method of expanding a communications array including the steps of:

providing a first shelter on a first vehicle frame, the first shelter including a first radio therein and a first signal interface accessible from the exterior of the first shelter, the first radio providing a plurality of communication channels;

providing a second shelter on a second vehicle frame, the second shelter including a second radio therein and a second signal interface accessible from the exterior of the second shelter, the second radio providing a plurality of communication channels;

electrically coupling ports on the first signal interface to ports on the second signal interface; and

controlling all provided communications channels with the first radio.

25. A vehicle array including:
a first vehicle including a power input interface and a power output interface;
a second vehicle including a power input interface and a power output interface;
a power generator having a power output interface;
a first power cable linking the power output interface of the power generator to the power input interface of the first vehicle; and
a second power cable linking the power output interface of the first vehicle to the power input interface of the second vehicle.

26. The vehicle array of claim **25**, wherein the power input interfaces and power output interfaces of the first and second vehicles are each disposed in exterior walls of respective housings that are disposed on frames of the respective first and second vehicles.

27. The vehicle array of claim **26**, wherein the housings of each vehicle contain communications equipment in electrical communication with the respective power input interface.

28. The vehicle array of claim **27**, further including a data cable linking a signal interface of the housing of the first vehicle to a signal interface of the second vehicle.

29. A method of powering a vehicle array including the steps of:
providing a first vehicle having a frame and a first shelter supported on the frame, the first shelter including a power input interface and a power output interface;
providing a second vehicle having a frame and a second shelter supported on the frame, the second shelter including a power input interface and a power output interface;
providing a power generator having a power output;
coupling the power output of the power generator to the power input interface of the first vehicle such that the power generator provides power to electronics housed within the first shelter;
coupling the power output interface of the first shelter to the power input interface of the second shelter to provide power to electronics housed within the second shelter.

30. The method of claim **29**, wherein power is provided to the second shelter exclusively via the power output interface of the first shelter.

31. The method of claim **29**, wherein the power generator is coupled to a mobile frame configured to be towed by the first vehicle.

32. A method of transporting a communications array including the steps of:
providing a first vehicle having a frame and a first shelter supported on the frame at a first location, the first shelter including plurality of communications devices therein, the communications devices being coupled to each other and to a signal interface disposed on the first shelter, the signal interface providing a plurality of ports that are accessible on the exterior of the first shelter;
providing a second vehicle having a frame and a second shelter supported on the frame at the first location, the second shelter including plurality of communications devices therein, the communications devices being coupled to each other and to a signal interface disposed on the second shelter, the signal interface providing a plurality of ports that are accessible on the exterior of the second shelter;
providing interconnect cables that interface with the signal interfaces of the first and second shelters to provide data connections between the plurality of electronics in the first and second shelters;
uncoupling the interconnect cables from the first and second shelters;
driving the first and second vehicles to a second location; and
coupling the interconnect cables to the signal interfaces of the first and second shelters to provide data connections between the plurality of electronics in the first and second shelters at the second location.

33. The method of claim **32**, further including the steps of:
uncoupling power cables coupled between the first and second shelters before the step of driving the first and second vehicles to a second location; and
coupling power cables between the first and second shelters at the second location.

34. A vehicle including:
a frame,
an engine supported by the frame, the engine operatively coupled to ground engaging members and capable of imparting motion to at least one of the ground engaging members;
a shelter housing coupled to the frame and dependent upon the frame for supporting the shelter housing;
a first communication device located within the interior of the shelter housing; and
a signal interface positioned on the shelter housing, the signal interface including ports thereon in communication the first communication device; wherein the first communication device includes software therein that permits the first communication device to control and operate a second communication device that is substantially similar to the first communication device, that is located in a shelter housing separate from the shelter housing containing the first communication device, and that is electrically coupled via a wire to the signal interface.

35. The vehicle of claim **34**, wherein the position of the engine relative to the shelter housing is fixed.

36. The vehicle of claim **34**, wherein all ground engaging members providing support to the shelter housing also provide support for the engine.

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